

IN THE CLAIMS:

All pending and new claims are provided immediately below.

Please amend Claim 80 as follows:

80. (Previously Presented) A method for locating a wireless mobile station,
comprising:

receiving first data related to wireless signals communicated between a particular
mobile station and at least a first network of a plurality of commercial mobile service
5 provider networks, wherein for each said network, there are a plurality of base stations
for at least one of transmitting and receiving wireless signals with a corresponding
plurality of mobile stations registered with the network, and wherein said particular
mobile station is registered with said first network for subscribing to a wireless service;

first requesting a first location estimate of the particular mobile station, wherein a
10 first location estimator provides said first location estimate of the particular mobile
station when said first location estimator is supplied with first location information
including data obtained using the first data, said location information capable of changing
with a change in a location of the particular mobile station;

wherein when said first location estimate is one of: (a) deemed ambiguous, (b)
15 can not be provided, (c) is not within a desired range of accuracy, and (d) has an extent
greater than or equal to a predetermined size, then the steps (A1) and (A2) are performed:
(A1) instructing said particular mobile station to communicate with a second network of
the plurality of networks for supplying second data, wherein said particular mobile
station is not registered with said second network for subscribing to a wireless service,
20 and wherein said second data is obtained using wireless signals communicated between

the particular mobile station and the second network; (A2) second requesting a second location estimate of said particular mobile station wherein said second location estimate is obtained using additional location information obtained at least in part from the second data;

25 outputting location information for the particular mobile station, wherein said location information is dependent upon at least one of the first and second estimates of the particular mobile station.

81. (Currently Amended) A method for locating a wireless mobile station, comprising:

 first receiving first signal characteristic measurements of wireless signals communicated between a mobile station and a first network of communication stations, wherein said communication stations in the first network are cooperatively linked by a 5 first wireless service provider for wirelessly communicating with the mobile station;

 instructing the mobile station to search for a wireless signal from a second network of communication stations that are cooperatively linked by a second wireless service provider for providing wireless communication, wherein said mobile station is for a 10 subscriber of said first wireless service provider, and said mobile station is not for a subscriber of said second wireless service provider;

 second receiving second signal characteristic measurements of wireless signals communicated between the mobile station and said second network of communication stations;

15 estimating a location of the mobile station using at least one of said first and second

signal characteristic measurements.

82. (Previously Presented) A method for locating a wireless mobile station as claimed in Claim 81, wherein the mobile station is registered for a wireless communication service with the first wireless service provider, and the mobile station is not registered for the wireless communication service with the second wireless service
5 provider.

83. (Previously Presented) A method for locating a wireless mobile station as claimed in Claim 81, wherein said step of instructing includes transmitting a command to the mobile station for instructing the mobile station to search for a signal from a communication station of said second wireless service provider in a frequency bandwidth
5 different from a frequency bandwidth for communicating with the communication stations of said first wireless service provider.

84. (Previously Presented) A method for locating a wireless mobile station, as claimed in Claim 81, wherein said step of estimating includes a step of computing a most likely location of said mobile station using a fuzzy logic computation.

85. (Currently Amended) An apparatus for locating a first mobile station, wherein the first mobile station communicates via wireless signals with a first wireless network infrastructure having [[:

]]a plurality of spaced apart communication stations for wireless communication

5 with said first mobile station, wherein at least one of said first mobile station and said first wireless network infrastructure has a capability for obtaining a plurality of multipath measurements for one of: one or more forward transmissions to said first mobile station, and one or more reverse transmissions from said first mobile station to said first wireless network infrastructure, and wherein said multipath measurements are derived from both
10 fixed clutter and variable clutter, said apparatus comprising:

an interface for receiving values indicative of said multipath measurements for at least one of said forward transmissions and said reverse transmissions;

a mobile station location determining system for locating said first mobile station, wherein said location determining system uses the values, and generates additional values
15 that have an enhanced dependence on multipath measurements derived from fixed clutter as compared to multipath measurements derived from variable clutter;

wherein said mobile station location determining system includes at least one wireless location determining model for estimating a location of said first mobile station, said at least one model uses one or more of said ~~transformed~~ additional values;

20 an output interface for outputting to one of: a communication network that provides telephony services, and the Internet a resulting location estimate of said first mobile station, said resulting location estimate obtained from said location determining system.

86. (Previously Presented) An apparatus for locating a mobile station, comprising:

a wireless network for communicating with a plurality of mobile stations, wherein

said network at least one of: transmits and receives wireless signals from the mobile station, and wherein said wireless signals are transmitted by the network in a forward bandwidth and said wireless signals are received at the network in a different reverse bandwidth, and, said wireless network includes a plurality of spaced apart communication stations for communicating via said wireless signals with said plurality of mobile stations;

an interface for supplying to a mobile station location obtaining system measurements including: (i) first measurements of said wireless signals transmitted to the mobile station in said forward radio bandwidth, and (ii) second measurements of said wireless signals received from the mobile station in said reverse radio bandwidth;

wherein said mobile station location obtaining system estimates a location of said first mobile station using both said first measurements and said second measurements.

87. (Currently Amended) The apparatus of Claim 86, wherein said interface provides to said mobile station location obtaining system with data indicative of CDMA finger measurements related to said radio signals communicated between the network and the mobile station.

88. (Currently Amended) A method for locating a mobile station using wireless signal measurements obtained from transmissions between the mobile station and at least one of a plurality of communication stations, wherein each of said communications stations includes one or more of a transmitter and a receiver for wirelessly communicating with the mobile station, comprising[[:]]

transmitting to the mobile station, a control message from one of the communication stations, wherein said message is received by a receiving antenna of said mobile station;

wherein the control message requests activation of at least one of a control processor and a searcher receiver in the mobile station, for determining a plurality of multipath finger sets for a wireless communication between said mobile station and at least a first of the communication stations, wherein ~~for~~ at least some of said multipath finger sets are different;

receiving information related to said finger sets in response to transmissions from the mobile station;

supplying said information for at least one of said finger sets to a mobile station location estimator for estimating a location of said mobile station.

89. (Previously Presented) A method for locating a wireless mobile station, comprising:

receiving data indicative of wireless signal measurements obtained via wireless signals communicated between a particular mobile station and a plurality of communication stations of a wireless infrastructure operated by a commercial radio service provider, wherein said particular mobile station is not registered with said commercial radio service provider;

wherein each of said communications stations includes one or more of a transmitter and a receiver for wirelessly communicating with said particular mobile station;

wherein said data includes information that is dependent upon a location of each of at least a first and a second of said plurality of communication stations;

determining, using at least said information, an estimate of a location, L, of said particular mobile station;

15 wherein said step of determining includes performing a substep of obtaining at least (a) and (b) following: (a) first location data indicative of a first range of locations for L relative to said first communication station, and (b) second location data indicative of a second range of locations for L relative to said second communication station.

90. (Previously Presented) The method of Claim 80, further including a step of determining said location information by performing a step of adjusting a confidence value for at least one of the first and second location estimates, wherein values for at least some of the following factors are used in adjusting the confidence value: (a) how closely
5 the location estimate matches a predetermined route, (b) how likely an estimated velocity of the particular mobile station is for a geographical area having the location estimate; (c) how closely the location estimate corresponds to a different estimate for locating the particular mobile station; (d) how closely the location estimate corresponds to an extrapolated location estimate of the particular mobile station.

91. (Canceled)

92. (Currently Amended) The method of Claim ~~91~~ 96, wherein NTWK_{reg} provides voice communications, and NTWK_0 ~~are one of: a same network and operated by~~

~~a same commercial radio service provider~~ includes at least a portion of the Internet.

93. (Currently Amended) The method of Claim ~~94~~ 96, wherein said step of receiving is provided via the Internet.

94. (Currently Amended) The method of Claim ~~94~~ 96 further including receiving vehicle operation information from sensors on a vehicle having the particular mobile station rental vehicle.

95. (Currently Amended) The method of Claim 94, wherein said vehicle operation information is used for controlling an operation ~~at the rental~~ a vehicle.

96. (New) A method for utilizing mobile station location information, comprising:
receiving, at a predetermined destination and as a consequence of a transmission from a location provider, location information for a mobile station (**M₁**);

wherein the location provider performs a first geolocation related task that has as a
5 consequence a performance of a first geolocation computation whose geolocation result is used to determine at least one geographical extent or position (**G₁**) for the mobile station **M₁**, and wherein the geographical extent or position **G₁** is used to obtain the location information;

wherein the first geolocation computation is performed using a first input obtained as
10 a result of (A) and (B) following:

(A) a communication of **M₁** geolocation indicative data from the mobile

station M_1 to a network (NTWK₁), the M_1 geolocation indicative data obtained from a corresponding wireless communication between: (1) the mobile station M_1 , and (2) at least one of: a receiver at a known location, and a transmitter at a known location; and

- (B) a transmission, from the network NTWK₁, of M_1 geolocation information for providing at least a portion (P_1) of the first input to the first geolocation computation, wherein the M_1 geolocation information is obtained from the M_1 geolocation indicative data;

wherein the location provider performs a second geolocation related task that has as a consequence a performance of a second geolocation computation whose geolocation result is used in determining at least one geographical extent or position (G_2) for a mobile station (M_2);

wherein the second geolocation computation is performed using a second input obtained via (C) and (D) following:

- (C) a wireless communication of M_2 geolocation indicative data from the mobile station M_2 to a network (NTWK₂), the M_2 geolocation indicative data obtained from a corresponding wireless communication between: (3) the mobile station M_2 , and (4) at least one of: a receiver at a known location, and a transmitter at a known location; and

- (D) a transmission from the network NTWK₂ of M_2 geolocation information for providing at least a portion (P_2) of the second input to the second geolocation computation, wherein the M_2 geolocation information is obtained from the M_2 geolocation indicative data;

35 wherein the network NTWK_1 is operated by a first service provider and the network
 NTWK_2 is operated by a second service provider different from the first service provider;

wherein at least one of the following (a) and (b) is satisfied:

(a) the portion P_1 is obtained using a signal time delay, and the geographical extent
or position G_1 is obtained using P_1 , and the portion P_2 is obtained using a signal

40 time delay, and the geographical extent or position G_2 is obtained using P_2 ; and

(b) for locating M_1 , the location provider does not perform a geolocation related
computation that results in a performance of a geolocation computation (GC)

for locating M_1 , wherein for locating M_2 , the geolocation computation CG
would yield effectively a same geolocation result as the second geolocation

45 computation when CG is supplied with a geolocation content for the second
input; and

using said location information for one of: monitoring and accessing said mobile
station M_1 .

97. (New) A method for locating one or more mobile stations, comprising:

first receiving, by a predetermined location provider, a request for locating a
mobile station (M_1);

first performing a first geolocation related task that has as a consequence a
5 performance of a first geolocation computation whose geolocation result is used to
determine at least one geographical extent or position (G_1) for the mobile station M_1 ,
wherein the first geolocation computation uses first input for obtaining G_1 , and the first

input is obtained using

- 10 (A) a wireless communication of \mathbf{M}_1 geolocation indicative data from the mobile station \mathbf{M}_1 to a network (NTWK_1), the \mathbf{M}_1 geolocation indicative data obtained from a corresponding communication between: (1) the mobile station \mathbf{M}_1 , and (2) at least one of: a receiver at a known location, and a transmitter at a known location; and
- 15 (B) a transmission from the network NTWK_1 of \mathbf{M}_1 geolocation information for providing at least a portion (\mathbf{P}_1) of the first input to the first geolocation computation, wherein the \mathbf{M}_1 geolocation information is obtained using the \mathbf{M}_1 geolocation indicative data;

second receiving, by the predetermined location provider, a request for locating a mobile station (\mathbf{M}_2);

- 20 second performing a second geolocation related task that has as a consequence a performance of a second geolocation computation whose geolocation result is used to determine at least one geographical extent or position (\mathbf{G}_2) for the mobile station \mathbf{M}_2 , wherein the second geolocation computation uses a second input, the second input obtained using (C) and (D) following:

- 25 (C) a wireless communication of \mathbf{M}_2 geolocation indicative data from the mobile station \mathbf{M}_2 to a network (NTWK_2), the \mathbf{M}_2 geolocation indicative data obtained from a corresponding communication between: (3) the mobile station \mathbf{M}_2 , and (4) at least one of: a receiver at a known location, and a transmitter at a known location; and
- 30 (D) a transmission, from the network NTWK_2 , of \mathbf{M}_2 geolocation information

for providing at least a portion (P_2) of the second input to the second geolocation computation, wherein the M_2 geolocation information is obtained from the second geolocation indicative data;

wherein the network $NTWK_1$ is operated by a first service provider and the
35 network $NTWK_2$ is operated by a second service provider different from the first service provider;

wherein at least one of the following (a) and (b) is satisfied:

- (a) the portion P_1 is obtained using a signal time delay, and the geographical extent or position G_1 is obtained using P_1 , and the portion P_2 is obtained
40 using a signal time delay, and the geographical extent or position G_2 is obtained using P_2 ; and
- (b) for locating M_1 , the location provider does not perform a geolocation related computation that results in a performance of a geolocation computation (GC) for locating M_1 , wherein for locating M_2 , the
45 geolocation computation CG would yield effectively a same geolocation result as the second geolocation computation when CG is supplied with a geolocation content for the second input; and

providing, to a predetermined destination, location information obtained using one or more of said geographical extents or positions G_1 and G_2 .

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98. (New) A method for accessing a location provider, comprising:
first obtaining, by a network ($NTWK_1$) operated by a first service provider, first geolocation related information for locating a mobile station ($M_{1,1}$);

first communicating with a location provider for providing thereto the first
5 geolocation related information, wherein there is two-way communication between the
network NTWK_1 , and the location provider uses the first geolocation related information
for performing a first geolocation related task that has as a consequence a performance of
a first geolocation computation whose geolocation result is used to determine at least one
geographical extent or position ($\mathbf{G}_{1,1}$) for the mobile station $\mathbf{M}_{1,1}$;

10 wherein the first geolocation computation is performed using a first input
obtained as a result of (A) and (B) following:

(A) a wireless communication of $\mathbf{M}_{1,1}$ geolocation indicative data from the
mobile station $\mathbf{M}_{1,1}$ to the network NTWK_1 , the $\mathbf{M}_{1,1}$ geolocation
indicative data obtained from a corresponding wireless communication
15 between: (1) the mobile station $\mathbf{M}_{1,1}$, and (2) at least one of: a receiver at a
known location, and a transmitter at a known location; and

(B) a transmission, from the network NTWK_1 , of $\mathbf{M}_{1,1}$ geolocation
information for providing at least a portion ($\mathbf{P}_{1,1}$) of the first input to the
first geolocation computation, wherein the $\mathbf{M}_{1,1}$ geolocation information is
20 obtained from the first geolocation indicative data;

second obtaining, by the network NTWK_1 , second geolocation related
information for locating a mobile station ($\mathbf{M}_{1,2}$);

second communicating with the location provider for providing thereto the second
geolocation related information, wherein there is two-way communication between the
25 network NTWK_1 , and the location provider uses the second geolocation related
information for performing a second geolocation related task that has as a consequence a

performance of a second geolocation computation whose geolocation result is used in determining at least one geographical extent or position ($G_{1,2}$) for the mobile station $M_{1,2}$;

wherein the second geolocation computation is performed using a second input
30 obtained via (C) and (D) following:

(C) a communication of $M_{1,2}$ geolocation indicative data for the mobile station $M_{1,2}$ to the network $NTWK_1$, the $M_{1,2}$ geolocation indicative data obtained from a corresponding communication between: (3) the mobile station $M_{1,2}$, and (4) at least one of: a receiver at a known location, and a
35 transmitter at a known location; and

(D) a transmission from the network $NTWK_1$ of $M_{1,2}$ geolocation information for providing at least a portion ($P_{1,2}$) of the second input to the second geolocation computation, wherein the $M_{1,2}$ geolocation information is obtained from the $M_{1,2}$ geolocation indicative data;

40 wherein there is two way communication between the location provider and another network ($NTWK_2$) that is operated by a second service provider in competition with the first service provider, wherein the communication with the network $NTWK_2$ provides third geolocation related information for locating a mobile station (M_2), wherein the location provider uses the third geolocation related information for performing a third
45 geolocation related task that has as a consequence a performance of a third geolocation computation whose geolocation result is used in determining at least one geographical extent or position (G_2) for the mobile station M_2 ;

wherein the third geolocation computation is performed using a third input obtained via (E) and (F) following:

- 50 (E) a wireless communication of M_2 geolocation indicative data from the mobile station M_2 to the network $NTWK_2$, the M_2 geolocation indicative data obtained from a corresponding wireless communication between: (5) the mobile station M_2 , and (6) at least one of: a receiver at a known location, and a transmitter at a known location; and
- 55 (F) a transmission from the network $NTWK_2$ of M_2 geolocation information for providing at least a portion (P_2) of the third input to the third geolocation computation, wherein the M_2 geolocation information is obtained from the M_2 geolocation indicative data;
- wherein at least one of the following (a) through (c) are satisfied:
- 60 (a) the portion $P_{1,1}$ is obtained from a signal time delay, and the geographical extent or position $G_{1,1}$ is obtained using $P_{1,1}$, and the portion P_2 is obtained from a signal time delay, and the geographical extent or position G_2 is obtained using P_2 ;
- (b) for locating $M_{1,1}$, the location provider does not perform a geolocation
65 related computation that results in a performance of a geolocation computation (GC_1) for locating $M_{1,1}$, wherein for locating M_2 , the geolocation computation CG_1 would yield effectively a same geolocation result as the third geolocation computation when CG_1 is supplied with a geolocation content for the third input; and
- 70 (c) for locating $M_{1,1}$, the location provider does not perform a geolocation related computation that results in a performance of a geolocation computation (GC_2) for locating $M_{1,1}$, wherein for locating $M_{1,2}$, the

geolocation computation \mathbf{CG}_2 would yield effectively a same geolocation result as the second geolocation computation when \mathbf{CG}_2 is supplied with a geolocation content for the second input.

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